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AUTHOR Ayers, Jerry B.
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ABSTRACT

This study summarizes and compares the first year graduates of the bachelor's level teacher preparation programs of Tennessee Technological University (TTU) for the past 15 years. The purpose of the study was to: (1) evaluate the objectives of the teacher education programs of TTU; (2) provide information for the faculty and administrators to help in making decisions pertinent to curriculum evaluation and development; and (3) aid in the process of making long-range plans for improving the total program. Information was obtained from four sources: (1) graduates of the teacher education programs; (2) their supervisors; (3) their students; and (4) independent observers. Data were collected over as many as five years on selected groups of graduates. A comparison summary of data is displayed in tables for the first, fifth, ninth, thirteenth, and fifteenth years of the project. Based on the results of the study, some trends were evident: (1) teachers have become more authoritarian; (2) mean scores on college entrance examinations have decreased and exit examination scores have increased; (3) grade point averages have increased; (4) ratings of the teacher education program appear to reflect current crises or concerns; and (5) mean performance ratings have increased slightly. (JD)

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A FIFTEEN YEAR LOOK AT BEGINNING TEACHERS[1]

Jerry B. Ayers
Center for Teacher Education Evaluation
Tennessee Technological University
Cookeville, Tennessee 38505

Logitudinal studies of teacher education programs are critical to making decisions with regard to changes and needed improvements. These studies are important in examining the changes that are occuring in society and how social, political, and economic factors are effecting changes in the curriculum for the preparation of teachers. In 1973, Tennessee Technological University initiated a longitudinal study of the teacher education programs of the institution. This study has continued for the past 15 years and has become an ongoing enterprise within the University. The study has made a difference in the programs of the University.

As an integral part of the studies of the teacher education programs, detailed examinations have been made of the graduates. The purpose of studying the graduates or products of the teacher education program was to provide additional input for program change and improvement. Graduates of the teacher education programs have been followed for as many as five years.

Over the 15 year period of the study, changes have occured in the students who have completed the teacher education programs of the University. These changes have occurred because of the teacher education program and because of changes in society. These changes are important when considering ways to improve teacher education programs.

Purpose

The purpose of this study was to summarize and compare the first year graduates of the bachelor's level teacher preparation programs of Tennessee Technological University for the past 15 years. More specifically this descriptive study will provide a comparative profile of samples of graduates over the past 15 years, who agreed to participate in the logitudinal studies of the University.

Method

Systematic evaluation of the graduates of the teacher education programs of Tennessee Technological University dates back to 1964 when a

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mail follow-up study of the graduates was conducted for the period 1958 through 1963. From 1964 until 1973, a gradual evolution took place in the evaluation of the teacher education programs of the institution. In 1973, the University developed and implemented a longitudinal model for systematic data gathering and for making evaluations (both process and product) of its programs in teacher education. The model was based in part on the work of Sandefur (1970).

The general model developed at Tennessee Technological University was based on generalizations from the research literature on effective teaching and suggested procedures and instrumentation for conducting a product evaluation of teacher education programs. The major part of the model was devoted to follow-up studies of the graduates of the teacher education programs of the University. The goals of the application of the evaluation model included the following:

1. To evaluate the objectives of the teacher education programs of Tennessee Technological University through a systematic study of the graduates of the program.

2. To provide information for the faculty and administrators concerned with teacher education programs at Tennessee Technological University in making decisions pertinent to curriculum evaluation and development.

3. To aid in the process of making long-range plans for improving the total program of the University with particular emphasis on teacher education.

The basic model provided input from four sources including (1) graduates of the teacher education programs (career base line data), (2) their supervisors (principals), (3) their students, and (4) independent observers. Data were collected over as many as five years on selected groups of graduates. Each fall up to 60 graduates of the teacher education program for the past year were selected to participate in the evaluation project. Over the 15 year history of the project over 650 bachelor's and master's level graduates have participated in the project (See Ayers in Reference Section). Following is a brief description of the instruments and methods used for collecting data from the four primary sources.

Career base line data were collected on a continuing basis. During the first year the graduates participated in the study; they completed the California F-Scale Forms 45 and 40 (Adorno, et al.) as a measure of personality, a self-rating device of the achievement of the objectives of the teacher education program, and a questionnaire designed to collect demographic information. Each graduate's transcript was analyzed and such information as standardized test scores (National Teacher Examinations, and American College Test) and grade point averages in major field, professional education, and psychology courses were collected.

Specially trained research assistants visted in the schools of the graduates on one or more occasions each year. The purposes of these

visits were to collect data from the principals and students of the graduates and to observe the graduates in the classroom. The principal of each graduate was interviewed and asked to complete an instrument designed to elicit an evaluation of the graduate's performance in the classroom and perceived level of attainment of the objectives of the teacher education program (Sandefur, 1970). The classroom of each graduate was visited and Ryan's Classroom Observation Record (Ryans, 1960), Flanders' Interaction Analysis technique (Amidon & Flanders, 1971) and the Tuckman Teacher Feedback Form (Tuckman, 1976) were employed by the research assistants to collect direct information about the performance of the graduates in the classroom.

Two comparable instruments were used to assess pupil ratings of teacher effectiveness. The Student Evaluation of Teaching-I (SET-I) described by Veldman (1971), was used to obtain ratings from pupils of teachers above the third grade. The SET-I provides a measure of whether the graduates were perceived as being friendly and cheerful, knowledgeable and poised, lively and interesting, provided an adequate level of control, and utilized democratic procedures. The Student Evaluation of Teacher-II (SET-II) described by Haak, Kleiber, and Peck (1972), was used to obtain ratings from pupils of teachers below the fourth grade. The instrument was designed to measure rapport, interactional competence; stimulating, interactive style; unreasonable negativity; and ability to foster self-esteem.

Data analyses, over the years have included a variety of techniques. The information shown in this paper was derived from a variety of reports and analyses of the accumulative data. Means, standard deviations, and the analysis of variance were employed in the data analyses presented in this paper.

Results of the 15 Year Study

The results of the 15 years of studies are contained in over 100 reports and papers. A variety of items of a specialized nature are contained in the ERIC Document collection that provides a substantial amount of information about the total project. The present paper provides some limited information about teachers who have just completed their bachelors' degree and are in their first year of teaching in the public schools in grades K-12.

A major objective of the project was to improve the teacher education programs of Tennessee Technological University. In earlier studies (Ayers, 1980, 1987) it was found that there were few changes in the graduates of the teacher education programs over a period of several years, in spite of changes in the curricula of the institution. Therefore, it was felt that this was a primary area for additional study. Therefore, this section presents a comparison summary of data for bachelor's graduates over the 15 year period. In order to keep this section at a managable level, data were shown for only the first, fifth, ninth, thirteenth, and fifteenth years of the project. Comparisions were made by use of analysis of variance across all 15 years or combinations of years; however, there were basically no differences in the first year groups in spite of changes in the curriculum. Following

is a summary of the information gathered from the graduates, their students, their principals, and by independent observers. It should be noted that the five years picked for inclusion in this paper included the first and last and three in the middle years.

Personal Variables

A variety of personal variables were collected on each graduate. Table 1 shows a comparison of four variables. The California F-scale was administered to the graduates at the time of the initial visit by research assistants to collect observational data. Over the 15 year period there was a gradual increase in mean score on the F-scale. The groups appeared to become slightly more closed-minded in their beliefs.

Birdwell (1988) examined all of the F-scale scores for 602 students who had completed either the bachelor's or master's degree at Tennessee Technological University and participated in the follow-up studies. All of the subjects had completed their degree work between 1973 and 1987. Birdwell (1988) hypothesized that scores for individuals who completed the F-scale in the early 1970s would be lower than those of students who completed their degrees and the F-scale in the 1980s. The subjects were divided into three groups based on the time of the completion of their degrees. The first group included students from 1973 through 1975 (the Vietnam era), the second groups included students who completed their work between 1976 and 1980 (the post-Vietnam era), and the third group included subjects who completed their work during the period from 1981 through 1987 (the Reagan era). The ANOVA procedure indicated a significant difference in F-scale scores between the three groups ($F=3.64$, $df=2/599$, $p<.05$). Utilizing a t-test the difference were found to be signficant between the Vietnam era group (mean score = 97.6) and the Reagan era (mean score = 104.4). In the past 15 years, society in general has become more conservative.

Mean grade point averages (GPA) for the graduates were shown in Table 1. Over the period mean GPAs increased from 2.92 to 3.23. This is probably in line with the general "grade inflation" that has occurred in higher education.

Mean American College Test (ACT) scores decreased over the 15 year period of the study. It should be noted that the ACT was taken prior to admission to the University. The mean score dropped 1.5 points from 19.5 in 1973 to 18.0 in 1985. In spite of this decline, other indicators of success in college and in the classroom were up. For example from 1973 through 1981, there was a gradual increase in mean Composite Score derived from the National Teacher Examinations (NTE) in 1973 the mean score was 1139 compared to 1192 in 1981. This 51 point increase in the mean NTE score could be attributed to changes in the curriculum of the teacher education program of the University. The NTE was changed in 1982 and it is not possible to make comparisons with the revised form of the instrument.

Table 2 shows a comparison of scores for the 1985 and 1987 administrations of the Core Battery of the National Teacher Examinations. The means scores on the Communications Skills test has

Table 1. - Comparison of Mean Scores for First Year Graduates on Selected Personal Variables

	1973 (Year I)	1977 (Year V)	1981 (Year IX)	1985 (Year XIII)	1987 (Year XV)
California F-Scale					
Mean Score	99.9	101.1	106.7	101.6	103.6
St. Dev.	20.0	21.1	21.5	23.2	16.5
Sample Size	39	27	28	22	28
American College Test					
Mean Composite Score	19.5	19.6	18.7	18.0	17.9
St. Dev.	4.9	5.3	4.3	4.5	4.3
Sample Size	35	24	21	19	28
Grade Point Averages					
Mean College GPA	2.92	3.10	3.11	3.20	3.23
St. Dev.	0.40	0.40	0.41	0.39	0.38
Sample Size	49	33	35	22	28
National Teacher Examination					
Mean Composite Score	1139	1189	1192	NTE Revised in 1983	
St. Dev.	114	101	100	(See Table 2)	
Sample Size	45	27	28		

Table 2. - Comparison of Mean Scores for First Year Graduates on the National Teacher Examinations for Year XIII and Year XV.

NTE Tests	1985 (Year XIII)	1987 (Year XV)
Communication Skills		
Mean Score	654	660
St. Dev.	18	8
Sample Size	20	28
General Knowledge		
Mean Score	657	657
St. Dev.	11	10
Sample Size	20	28
Professional Knowledge		
Mean Score	659	659
St. Dev.	10	11
Sample Size	20	27

increased by four points, while the mean scores on the General Knowledge and Professional Knowledge test have remained unchanged. a recent study of all students who completed the NTE at the University over the past five years, indicated that the mean scores had increased slightly over the period. This is in line with the results of the present trend, i.e., slight increases in mean scores on exit tests from the teacher education program, in spite of a slight decrease in mean entrance level scores.

Course Ratings and Ratings of Achievement of Objectives of Program

As a part of the studies, the participants have been asked to complete a form indicating satisfaction with certain key courses in the teacher education program and with their perceived level of achievement of the major objectives of the course of study. Martin (1987) made a detailed study of the questionnaires completed by 3,741 graduates between the period 1965 and 1986. The results of the present study reflect the findings of Martin, in her larger study.

During the 15 years of the study, it was evident that the perceptions and attitudes of the graduates reflected past and present emphasis in teacher education. It is somewhat evident that past assessments represented future directions for teacher education.

The teacher graduates' dissatisfactions with various aspects of their program tended to mirror educational problems and concerns within educational systems during a particular era. For example, school discipline became a major concern in the mid-70s. It was also during this era that with the passing of PL 94-142, regular teachers suddenly realized they had very little knowledge or skills to work with exceptional children. Therefore, teacher education began to be restructured to include classroom management skills and study in special education for all prospective teachers. As the program changed, the perceptions and attitudes of the graduates slightly changed. One assumption that can be made from this finding is teacher candidates will gain more knowledge and understanding from program courses when they know specific competent performances will be expected of them as teachers. A second assumption is teacher preparation courses and methods are valued when teacher candidates can transfer and apply the knowledge and skills to their classroom settings. Micro and student teaching and field experiences seem to be vehicles for reinforcing the preparation learning. The teacher graduates were not only satisfied with these practical experiences, but they wanted more opportunities as well.

There has generally been a dissatisfaction with liberal arts courses. In an era of reform debates, the findings have generated two questions. Do the graduates' perceptions and attitudes toward liberal arts courses refute some of the current arguments for more liberal arts instruction for education majors? Will adding a more liberal arts curricula improve effective teaching behaviors?

Overall, the results from the study did not necessarily reveal whether or not the teacher program was good or bad. More significantly,

the findings represented a gauge as to whether or not the teacher program accomplished its purposes with the teacher candidates who later became practicing teachers.

Principal Ratings

A crude indicator of success in the classroom is the ratings given by principals. Table 3 shows a comparison of the mean ratings given by the principals of the graduates on Evaluation by Supervisor instrument developed by Sandefur (1970). Mean ratings increased during the 15 year period by about 0.3 points and the standard deviations decreased about 0.2 points. On the surface it appeared the first year teachers in 1987 might be better prepared than their counter parts of 1973.

Student Evaluations of Teaching

The students of the graduates above the third grade were asked to complete the SET-I, while students of the graduates in grades K-3 completed the SET-II. Table 4 shows a comparison of the data across the 15 year period. Again, there were no significant differences across the time. Composite scores remained almost the same. Scores on the factors of Friendly and Cheerful, Control, and Democratic Procedures increased. Mean scores on the factor of Lively and Interesting decreased over the period.

The SET-II was not introduced into the study until the third year of operation. In general scores across the 12 year period decreased on the three major factors. No explanation can be offered for these results.

Observation Data

From 1973 through 1985 the same basic instruments were used for observation of graduates in the classroom. Beginning in 1986 and 1987 different instruments were used that reflect different objectives and ways of gathering data. Therefore, the present study was confined to the first 13 years of data gathered.

Three instruments were used that required the gathering of data through direct observation of the graduates in the classroom. The results were shown in Table 5. It should be noted that observer reliabilities across the years were on the order of 0.80. Results of the use of Flanders interaction analysis indicated the graduates were tending to use more direct teaching methods (n.s.) in the later years of the study. Also it appeared that better use was being made of classroom time (Silence/Total Teaching ratio) and the amount of student talk (i.e., asking questions) in the classroom increased.

The Classroom Observation Record (Ryans, 1960) was employed at the end of each observation period. Factor analysis studies that were carried out indicated the instrument appeared to be measuring three factors. Mean scores on the cognitive and affective factors increased six points and four points, respectively. Scores derived from the student factor did not change over the period of the study.

Table 3. - Comparision of Mean Principals' Ratings

Variable	1973 (Year I)			1977 (Year V)			1981 (Year IX)			1985 (Year XIII)			1987 (Year XV)		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD	N	$\bar{X}$	SD
I Subject	48	4.1	0.7	27	4.2	0.7	32	4.5	0.5	21	4.3	0.6	26	4.3	0.6
II Relations with Students	48	4.2	0.8	27	4.4	0.6	32	4.5	0.5	21	4.4	0.5	26	4.5	0.6
III Appropriateness of Assignments	48	4.2	0.7	27	4.2	0.6	32	4.3	0.6	21	4.3	0.5	26	4.3	0.6
IV Overall Effectivness	48	4.1	0.7	27	4.0	0.6	32	4.4	0.5	21	4.4	0.5	26	4.4	0.5

Table 4. - Comparison of Results of the Use of Student Evaluation of Teacher

Variable	1973 (Year I) N	$\bar{X}$	SD	1977 (Year V) N	$\bar{X}$	SD	1981 (Year IX) N	$\bar{X}$	SD	1985 (Year VIII) N	$\bar{X}$	SD	1987 (Year XV) N	$\bar{X}$	SD
Student Evaluation of Teaching (SET-I)															
Friendly and Cheerful	25	344	45	18	334	43	22	357	27	14	350	23	23	331	46
Knowledgeable and Poised	25	357	40	18	325	34	22	360	15	14	358	24	23	345	29
Lively and Interesting	25	309	64	18	288	25	22	307	25	14	298	45	23	283	47
Control (Discipline)	25	303	34	18	286	51	22	312	35	14	319	40	23	296	26
Democratic Procedures	25	257	42	18	249	53	22	272	28	14	266	60	23	254	51
Composite Score	25	314	29	18	302	33	22	319	20	14	313	24	23	308	26
Student Evaluation of Teacher (SET II)															
Rapport	Instrument not used in first year of study.			10	5.5	0.6	8	5.6	0.4	6	5.5	0.4	6	5.3	0.3
Stimulating, Interaction Style of Study				10	9.4	2.7	8	10.1	0.6	6	8.8	1.2	6	8.6	3.8
Fosterance of Self Esteem				10	6.8	0.8	8	6.7	0.5	6	6.3	0.5	6	6.7	7.1

Table 5. - Comparison of the Use of Observation Instructments[a]

Variable or Factors	1973 (Year I) N	1973 (Year I) $\bar{X}$	1973 (Year I) SD	1977 (Year V) N	1977 (Year V) $\bar{X}$	1977 (Year V) SD	1981 (Year IX) N	1981 (Year IX) $\bar{X}$	1981 (Year IX) SD	1985 (Year XIII) N	1985 (Year XIII) $\bar{X}$	1985 (Year XIII) SD
Flanders Interaction Analysis												
Indirect/Direct Teaching	45	0.79	0.75	30	1.41	1.51	33	0.68	0.61	22	0.40	0.23
Revised Indirect/ Direct Teaching	45	1.57	1.72	30	3.06	1.46	33	1.15	1.74	22	1.37	1.58
Student Talk/Teacher Talk	45	0.59	0.57	30	0.78	1.07	33	0.47	0.25	22	0.64	0.38
Silence/Total Teaching	45	0.45	0.93	30	0.32	0.28	33	0.52	0.45	22	0.35	0.35
Lecture/Total Teaching	45	0.48	0.20	30	0.27	0.21	33	0.31	0.13	22	0.65	0.13
Classroom Observation Record[b]												
Factor I Cognitive	45	42	4.0	30	44	3.8	33	42	1.6	22	48	3.8
Factor II Affective	45	64	6.3	30	69	5.2	33	65	2.3	22	68	5.2
Factor III Students	45	23	3.4	30	25	2.8	33	23	2.0	22	23	4.0
Tuckman Teacher Feedback Form												
Creativity	Instrument not used in the first four year of the study.			30	32	8.2	32	32	5.5	22	31	7.7
Dynamism (Dominance of Energy)				30	32	6.5	32	34	3.7	22	31	4.6
Organized Demeanor (Organization and Control)				30	36	5.9	32	36	3.8	22	40	3.7
Warmth and Acceptance				30	40	4.8	32	36	3.3	22	39	5.5

[a]Classroom observation instruments changed beginning in 1986.

[b]Based on factor analysis of the 22 item instrument. Factor I consisted of items 10,12,14,15,16,17,18; Factor II consisted of 5,6,7,8,9,11,13,19,20,21,22; and Factor III consisted of 1,2,3,4.

The Tuckman Teacher Feedback Form (Tuckman, 1976) was introduced into the study in 1977. Over the nine year period, the mean scores for organization and control increased four points (n.s.) This corresponds to the findings from the use of the SET. Other factor scores remained about the same across the nine years of the study.

The results of the 15 year study were not startling and will not drastically effect the preparation of teachers. However, some useful information was gathered that was used in the improvement of the teacher education programs of Tennessee Technological University. The data gathered across the 13 year period indicated that some changes did occur in the students and in the curricula of the programs. What can be attributed to curricula changes may be debatable. However, the faculty of the institution did receive feedback and did obtain some useful information for program improvement. The next section of this paper provides information about changes for the future and other ways to improve curricula.

Summary Profile of First Year Teachers

What do first year teachers look like and how have they changed over the past 15 years? Initially it should be kept in mind that the purpose of this study was to gather data for use in program improvement at one institution of higher education (Tennessee Technological University). Also, the results of this current study employed a prior research design which results in additional limitations. However, based on the results of the study there are certain trends that were evident from the data that were collected.

The following statements are of a general nature and are designed to give the reader some general information about how first year teachers have changed over the period from 1973 through 1987. It was felt that the study was representative of all the graduates of teacher education program of the University.

1. First year teachers have become slightly more authoritarian in their beliefs over the period. Some research studies have indicated that teachers who are more open-minded (lower F-scale scores) generally perform at a higher level in the classroom. The increase in scores may be due to the general nature of society (i.e., a general tendency toward being more conservative.

2. The means scores on such college entrance examinations as the American College Test has decreased over the past 15 years. However, the mean scores on exit examination such as the National Teacher Examinations have increased. The graduates may have been motivated during their four years of study and have thus achieved a high level on the NTE.

3. Grade point averages for the graduate have increased over the years. The increase in mean averages appears to be in line with the general trend toward grade inflation over the past two decades.

4. Mean scores on exit examinations from teacher education programs have increased over the past 15 years. Thus it would appear that the graduates might be better prepared to enter the classroom, if one assumes that the NTE is a valid and reliable predictor of success as a teacher.

5. Ratings of attainment of objectives and concerns about the teacher education programs completed by the graduates appear to mirror the thinking of the times and the current crisis or concerns. Changes have been made in the curricula that can be traced directly to the comments and concerns of the graduates.

6. Over the 15 year period mean ratings of the level of performance of the first year graduates in the classroom have increased slightly. This could reflect an improved teacher education program or other factors.

7. Mean student evaluations of first year teachers have generally decreased over the past 15 years. This is in evidence at both the primary and secondary levels. This is in direct contrast with principal ratings.

8. Results achieved through the use of observation instruments indicated mixed results. There was no clear cut pattern in the results of this part of the study.

As a whole the teachers through the 15 years of the study appeared to be doing acceptable jobs in the classroom. In general they had achieved at or above the 50th percentile in their work at the University. Although the data is incomplete it does point to some trends that are evident. This information can be used for program improvement for the preparation of teachers. It may be of value in pointing to new directions for research into working with beginning teachers in the classroom.

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